

AMENDMENTS TO THE CLAIMS

1-11. (Previously canceled)

12-19. (Canceled)

20. (Currently amended) A method for producing a geogrid, which includes longitudinal ~~fiber-reinforced~~ polymer strips reinforced with fibers or fiber bundles and lateral ~~fiber-reinforced~~ polymer strips reinforced with fibers or fiber bundles, ~~that are the~~ longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips being interconnected at a plurality of junctions to form a lattice structure, by using a device provided with a strip arranging means,

wherein the strip arranging means comprises ~~a~~ an upper plate and a lower plate positioned to face the upper plate,

wherein the upper plate, the lower plate, or both are moveable so that the upper and lower plates can come closer to and get away from each other within a predetermined distance,

wherein a predetermined number of first bending members are formed on the lower surface of the upper plate and a predetermined number of second bending members are formed on the upper surface of the lower plate,

wherein the first bending members and the second bending members are formed along a plurality of ~~spaced apart~~ lateral lines that are spaced apart from and are in parallel with each other and a plurality of ~~spaced apart~~ longitudinal lines that are spaced apart from and are in parallel with each other such that the first and second bending members are formed at positions corresponding to the junctions of the lattice structure while ~~not being overlapping~~ they do not directly face each other,

the method comprising:

~~(a) providing longitudinal fiber-reinforced polymer strips and lateral fiber-reinforced polymer strips by co-extruding a polymer resin and a longitudinally elongated fiber or fiber bundle;~~

~~(a)(b)~~ supplying the longitudinal fiber-reinforced polymer strips between the upper and lower plates along the plurality of ~~spaced apart~~ longitudinal lines;

~~(b)(c)~~ moving the upper plate, lower plate, or both to become closer to each other such that all of the longitudinal fiber-reinforced polymer strips are pressed by the first and second bending members at the same time, thereby forming valleys in each of the longitudinal fiber-reinforced polymer strips at positions where the longitudinal fiber-reinforced polymer strips are pressed by the first bending members and ridges in each of the longitudinal fiber-reinforced polymer strips at positions where the longitudinal fiber-reinforced polymer strips are pressed by the second bending members, ~~thereby forming spaces, each of which is closed when viewed in a lateral direction, by at least one of the valleys and at least one of the ridges~~ whereby the valleys and the ridges formed in all of the longitudinal fiber-reinforced polymer strips define closed spaces when viewed in a lateral direction;

~~(c)(d)~~ inserting the lateral fiber-reinforced polymer strips into the closed spaces at ~~the same time so that~~ such that one lateral fiber-reinforced polymer strip is inserted into each closed space, whereby the lateral fiber-reinforced polymer strips are crossed with the longitudinal fiber-reinforced polymer strips at positions corresponding to the junctions of the lattice structure; and

~~(d)(e)~~ adhering ~~contact points at which the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are crossed to each other at the positions corresponding to the junctions of the lattice structure.~~

21. (Currently amended) The method for producing a geogrid according to claim 20,

wherein each of the first bending members ~~and each of the second bending members are provided with a support groove that can prevent the longitudinal fiber-~~

~~reinforced polymer strips from being deviated when the longitudinal fiber-reinforced polymer strips are pressed~~ is provided with a first pair of lateral support grooves and each of the second bending members is provided with a second pair of lateral support grooves, the first pairs of lateral support grooves and the second pairs of lateral support grooves being able to prevent the lateral fiber-reinforced polymer strips from being deviated when the lateral fiber-reinforced polymer strips are inserted in the step (c).

22. (Currently amended) The method for producing a geogrid according to claim 20,

~~wherein each of the first bending members and each of the second bending members are provided with a through hole through which can pass~~ is provided with a first pair of longitudinal support grooves and each of the second bending members is provided with a second pair of longitudinal support grooves, the first pairs of longitudinal support grooves and the second pairs of longitudinal support grooves being able to prevent the longitudinal fiber-reinforced polymer strips from being deviated when the longitudinal fiber-reinforced polymer strips are pressed in the step (b).

23. (Currently amended) The method for producing a geogrid according to claim 20,

~~wherein, in the step (e), the contact points are adhered by means of~~ in the step (d), the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered by a welding unit which includes a first welder and a second welder,

the first welder comprising:

a first upper jig and a first lower jigs which are faced with each other~~oppositely moves at an interval; and~~

a plurality of first support holders protruded on opposite surfaces of the upper and lower jigs so as to be opposed with each other~~the bottom surface of the first upper jig; and~~

a plurality of first support holders protruded on the top surface of the first lower jig,
and
the second welder comprising:
a second upper jig and a second lower jig which are faced with each other at an
interval;
a plurality of second support holders protruded on the bottom surface of the second
upper jig; and
a plurality of second support holders protruded on the top surface of the second
lower jig.

24. (Currently amended) The method for producing a geogrid according to claim 23, the method comprising:

~~wherein one of the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips crossed at the contact points is pressed and supported by one of the opposite support holders, and~~

~~wherein the other of the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips crossed at the contact points is pressed and vibrated by the other of the opposite support holders so that the contact point is adhered~~

(a) fixing the first lower jig and vibrating the first upper jig while pressing upper surface portions of the longitudinal fiber-reinforced polymer strips and lower surface portions of the lateral fiber-reinforced polymer strips by the plurality of first support holders;
and

(b) fixing the second upper jig and vibrating the second lower jig while pressing upper surface portions of the lateral fiber-reinforced polymer strips and lower surface portions of the longitudinal fiber-reinforced polymer strips by the plurality of second support holders;

such that the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered at the positions corresponding to the junctions of the lattice structure.

25. (Currently amended) The method for producing a geogrid according to ~~claim~~
24claim 20,

wherein, in the ~~step (d)~~step (c), first contact points and second contact points are formed at the positions corresponding to the junctions of the lattice structure such that a first contact point at which a lower surface portion of the longitudinal fiber-reinforced polymer strip is crossed with an upper surface portion of the lateral fiber-reinforced polymer strip at each of the first contact points and a second contact point at which an upper surface portion of the longitudinal fiber-reinforced polymer strip is crossed with a lower surface portion of the lateral fiber-reinforced polymer strip at each of the second contact points are formed, and

wherein, in the step (d), the first and second contact points are adhered step by step with the use of the welding unit the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered either at the first contact points and then at the second contacts or at the second contact points and then at the first contact points.

26. (Canceled)

27. (New) The method for producing a geogrid according to claim 20, wherein in the step (c), first contact points and second contact points are formed at the positions corresponding to the junctions of the lattice structure such that a lower surface portion of the longitudinal fiber-reinforced polymer strip is crossed with an upper surface portion of the lateral fiber-reinforced polymer strip at each of the first contact points and an upper surface portion of the longitudinal fiber-reinforced polymer strip is crossed with a lower surface portion of the lateral fiber-reinforced polymer strip at each of the second contact points, and

wherein the first and second contact points are formed in turns in at least one of the longitudinal fiber-reinforced polymer strips, at least one of the lateral fiber-reinforced polymer strips, or both.

28. (New) The method for producing a geogrid according to claim 27, wherein, in the step (d), the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered to each other at the first and second contact points.

29. (New) The method for producing a geogrid according to claim 28, wherein the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered to each other by vibration welding, ultrasonic friction welding, heating adhesion, or any combination thereof.

30. (New) The method for producing a geogrid according to claim 27, wherein the step (d) comprises fixing the longitudinal fiber-reinforced polymer strips and vibrating the lateral fiber-reinforced polymer strips.

31. (New) The method for producing a geogrid according to claim 27, wherein the step (d) comprises fixing the lateral fiber-reinforced polymer strips and vibrating the longitudinal fiber-reinforced polymer strips.

32. (New) The method for producing a geogrid according to claim 27, wherein in the step (d), the longitudinal fiber-reinforced polymer strips and the lateral fiber-reinforced polymer strips are adhered either at the first contact points and then at the second contacts or at the second contact points and then at the first contact points.

33. (New) The method for producing a geogrid according to claim 20, wherein in the step (c), first contact points and second contact points are formed at the positions corresponding to the junctions of the lattice structure such that a lower surface portion of the longitudinal fiber-reinforced polymer strip is crossed with an upper surface portion of the lateral fiber-reinforced polymer strip at each of the first contact points and an upper surface portion of the longitudinal fiber-reinforced polymer strip is crossed with a lower

surface portion of the lateral fiber-reinforced polymer strip at each of the second contact points, and

wherein at least two second contact points are formed between two of the first contact points in at least one of the longitudinal fiber-reinforced polymer strips, at least one of the lateral fiber-reinforced polymer strips, or both.

34. (New) The method for producing a geogrid according to claim 20, wherein in the step (c), first contact points and second contact points are formed at the positions corresponding to the junctions of the lattice structure such that a lower surface portion of the longitudinal fiber-reinforced polymer strip is crossed with an upper surface portion of the lateral fiber-reinforced polymer strip at each of the first contact points and an upper surface portion of the longitudinal fiber-reinforced polymer strip is crossed with a lower surface portion of the lateral fiber-reinforced polymer strip at each of the second contact points, and

wherein at least two first contact points are formed between two of the second contact points in at least one of the longitudinal fiber-reinforced polymer strips, at least one of the lateral fiber-reinforced polymer strips, or both.